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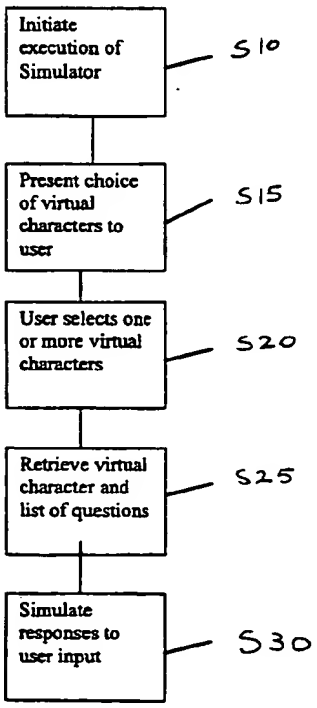
(54) Title: METHOD AND SYSTEM FOR DIALOG SIMULATION



(57) Abstract: A method and system for simulating conversation is disclosed. A user selects at least one virtual character from a plurality of virtual characters. Each virtual character has an identity and a personality type associated therewith. The virtual characters, their identity and the associated personality type are stored on a storage medium of a computer. An input device enables the user to select a virtual character from among the plurality of virtual characters to initiate a simulated conversation with. The user may ask questions or converse with the selected virtual character to elicit responses from the character which represent responses that may be expected from actual people having the same personality type as that chosen by the user. The responses are presented to the user on an output device. The simulation provides a learning experience to the user.

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METHOD AND SYSTEM FOR DIALOG SIMULATION

Field of the Invention

This invention relates to simulation, and more particularly, to a computer-based dialog simulator for facilitating simulated conversation(s).

Background of the Invention

There currently exists a need for computer simulation of conversations in both academia and industry. In order to make these simulations meaningful and useful, the conversation have to be based on a given situation based on a set of current data. These conversations or dialogs may be based on templates generated before by a "Designer", such as an instructor in academia or a project manager in industry, or rendered by the communication engine itself. The benefit of such simulation is to provide users with an ability for simulating a conversation about specific current conditions and allowing the computer to determine the outcome. In order to provide value, the dialogs in the simulation need to have as accurate a portrayal of personalities as possible of all the simulated participants. It is also necessary to have the ability to quickly and easily enter the dialogs in cases where the designer must set up the people and dialogs to be simulated.

As a simulation of an actual dialog, these conversations may take place at any point in simulated time that the user selects. The simulator then has to act accordingly and produce dialog that may be based upon the time of day, the time of year, and other events that affect the simulated members of the conversation and the data available to the simulated people at that moment in time. This data may be in the form of how much work the simulated person has completed on a task to which this simulated person is assigned; the data may also be a morale rating based upon events that have occurred in or out of the simulated office which would have affected the simulated person's state of mind.

In flight training, for example, flight simulators allow pilots to experience a simulated flight without actually flying a plane. This type of simulation also avoids the expense and risk to life of using an actual plane. In a similar manner, allowing a student to learn the necessary communication skills through a communication simulator can prepare the student for a variety of likely outcomes based on the simulated personality that the student has interacted with through the simulation. The student is spared from emotional turmoil, failure to gather the correct information from the other member(s) of the conversation, or correctly give instructions to them, for example.

Expert systems use simulation to stress test designs before committing manufacturing resources. Similarly, a conversation simulator would allow industry to test the results of an approach in talking with a person having a certain personality or the effects of putting several people together with each person having a specific definable personality. The ability to predict, with precision. who will work or not work well together is needed in industry.

Currently, there is no existing system that addresses the needs described above. There are training systems that involve dialog but these are not true simulators. The standard approach is to construct a tree in which the user may select a choice to ask of a computer (or, simulated) person. This question selects what branch of the tree is taken. This is a very limited approach as it does not simulate a real conversation.

There is no change in the net result of a tree-based conversation determined by the personality or current moods of simulated people. In fact. these approaches make the fundamentally wrong assumption that people are constant.

What is desired, therefore, is a computer based system and method for creating and utilizing a dialog simulator which is dynamic in nature.

Summary of the Invention

Accordingly, an object of the present invention is to provide a simulator for simulating conversation;

Another object of the present invention is to provide a simulator which incorporates personality profiles;

A further object of the present invention is to provide a dynamic simulator which factors in various conditions for the personality types to react to during a simulation.

An additional object of the present invention is to provide a dialog simulator which enables a user the ability to interact with simulated people and observe a reaction of the simulated people in response to the user inputs.

These and other objects of the present invention are achieved by a computer based dialog simulator.

Brief Description of the Drawings

The above objects and features of the present invention will be more apparent from the following description of the preferred embodiments with reference to the accompanying drawings, wherein:

FIG. 1 illustrates a system that is utilized for practicing exemplary embodiments of the present invention; and

FIG. 2 illustrates a method for facilitating a virtual conversation according to exemplary embodiments of the present invention.

Detailed Description of Preferred Embodiments

In the following description, for purposes of explanation and not limitation, specific details are set forth, such as particular circuits, circuit components, techniques, etc. in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practices in other embodiments that depart from these specific details. In other instances, detailed descriptions of well-known methods, devices and circuits are omitted so as not to obscure the description of the present invention.

The conversation simulator of the present invention draws upon communication standards for verbal skills that are to be used and taught as described, for example, in *Behavior, Analysis in Training* (by Neil Rackham and Terry Morgan, © 1977, McGraw-Hill, U.K.). The standards may include such elements as giving information, seeking information, building, proposing, supporting, summarizing, defend/attack, seek proposal, testing understanding, sharing and disagreeing, for example.

Either a user or a simulated person may initiate a conversation based upon current conditions and individual personalities. Certain personality types are more likely to start a dialog than other personality types.

With reference to FIG. 1, a user 10 may first select one or more virtual character(s) from a plurality of virtual characters presented on output means 140. Each of these virtual characters presented on the output means 140 may have an identity and a personality types associated therewith. The virtual characters, their identity and the associated personality types may be stored in storage means 130. The simulation between a user and a selected virtual character(s) then proceeds as follows: the user 10 may the either select his or her statements and questions from a set of choices that may be displayed on an output means 140 and input the choice through an input means 110. The output means 140 could very well be integrated with the input means 110 or they may be the same element. The user may select choices presented on the output means 140 by actuating a portion of the output means 140 to enter an input. This is similar to selecting a choice on a display. These questions or choices may be based upon current conditions in the simulation. The user 10 may also type or speak his or her statements and questions directly into an input means 110. A processing means 120 may retrieve a plurality of

virtual characters from storage means 130 for presentation on output means 140 prior to user input. The processing means 120 may also process the user input to retrieve the selected virtual character and then process the user input and apply it to the selected virtual character. The input means 110, the output means 140 and the storage means 130 may all be connected to the processing means 120. The user input is then parsed and responded to by the processing means 120 utilizing the personality types stored in the storage means 130. The output means 140 may be a display monitor, a speaker or a printer.

The simulated people may provide responses or ask questions based upon one or more of the following: personality, morale, current data from the ongoing simulation (every communication simulation runs along side a project or related simulation, which provides data and current conditions), effects from previous conversations, and other factors such as interactions with other simulated people.

The personalities are based on Myers-Briggs and enneagram personality types, as well as charts and matrices created for use with this simulator. The enneagram model may be found in *Personality Types* (by Don Richard Riso, © 1987 Houghton Mifflin). This model may be translated to and from the well-known Myers-Briggs system. The enneagram model is selected for its numeric modeling of personalities, which lends itself to very easy application on a computer. It also forms an excellent foundation as it allows for personalities to vary on a plurality of factors including variations based on mood and emotional state. These factors are critical to an accurate and precise simulation of a dialog.

Employees may be tested for Myers-Briggs personality types. The employee responses may then be processed by a computer to determine a personality type according to the Myers-Briggs standard. By allowing for easy translation from the Myers-Briggs system, the test results may then be used to model the employees within a company in the simulation. This enables a simulation specific to a company and people associated with the company. This is important for predicting outcomes of specific management styles and for training project managers. In other embodiments. the user may be tested to determine his or her personality type and the simulation including the virtual people will adjust itself to the user's personality type.

A simulation according to exemplary embodiments of the present invention facilitates communication beyond just the described face-to-face dialogs. It includes such additional abilities as communicating by e-mail and telephone. E-mail communications need to be treated differently because they take place in discreet blocks. Each party has to have the ability to issue a statement and then needs to wait for some period of time for a response. This delay, as with

the response itself, is partially a function of the personality of the respondent and the current conditions. Other forms of communication may also be facilitated.

In virtually all cases, there will be variations or changes in the simulated people involved in the dialog as they are in person. Whether this is a change in morale or a specific task assignment, depends on the situation and its complexity. The ability to influence events via dialogs is a critical component of the simulation. The changes in the simulated people may also be in response to the type of questions asked by the user or tasks the simulated person is subjected to by the user. The changes in one simulated person may result from the dialog of other simulated persons as well.

A method according to exemplary embodiments of the present invention is illustrated in FIG. 2. A user 10 initiates execution of the dialog simulator at step S10. In response, a computer presents the user with a choice of virtual characters at step S15. For each of the virtual characters presented by the computer, an identity and an associated personality type are stored. Once one or more virtual character(s) is (are) chosen by the user at step S20, the computer retrieves the virtual character(s) and a list of questions may be presented to the user at step S25 for user selection. In the alternative, the user may be allowed to input his or her questions via an input means such as a keyboard, a microphone or a stylus to write an input using the user's handwriting. The simulator then proceeds to simulate responses to the user input at step S30.

An exemplary application for the conversation simulator according of the present invention may be as a dialog component of a project management simulator. This application may allow the user to take on the role of project manager and manage an entire project of a few months to a few years. Since part of his or her role as a manager is selecting and talking with a team, the dialog simulator of the present invention will allow the project manager to determine who will work well together on this team even before the start of the project. The dialog simulator will also teach the user on how and/or how not to talk with the people on the team and how to motivate each individual and manage the resulting complexity.

Other applications of the present invention may include those environments where proper communication training is needed. These applications may include, for example, negotiations, sales, general management, data driven dialogs with virtual people for World Wide Web applications, sexual harassment, and other like applications.

Additional areas in need of dialog simulation include games. For example, as game writers seek greater and greater realism, simulating life-like people within those games becomes more critical. The computerized personality models of the present invention may be incorporated into this environment to provide a realistic dialog as it will be provide an effortless

and cost-effective approach for game writers and developers to achieve the goal of simulating a more realistic dialog.

The present invention may also be used in conjunction with expert systems. Such usage allows either a project manager or personnel director to select a set of personality types and then let a simulation run without input from the user. By watching the simulation unfold and seeing the ultimate outcome, the user will gain an understanding of the interaction between various personality types. The user will then be able to decide whether or not to put the people represented by the simulated personalities together on a team. Alternatively, if there is no choice in who is on the team, at least the likely pitfalls will be known ahead of time.

In any area or subject where conversation is important, the system and method of the present invention may be used to provide a simulation of conversation or dialog.

The foregoing has described the principles, preferred embodiments and modes of operation of the present invention. However, the invention should not be construed as being limited to the particular embodiments described above. The above-described embodiments should be regarded as illustrative rather than restrictive, and it should be appreciated that variations may be made in those embodiments by those skilled in the art without departing from the scope of the present invention as defined by the following claims.

CLAIMS

1. A method for facilitating a virtual conversation between a user and a virtual character, said method comprising the steps of:

a user selecting at least one virtual character from a plurality of virtual characters having an identity and an associated personality types stored on a storage means associated with a computer;

said user providing an input to said selected virtual character;

said computer providing a response to said user input, wherein said response is indicative of a response provided by an actual person having a personality type associated the selected virtual character.

2. The method of claim 1, wherein a personality type associated with the virtual character selected by the user is unknown to the user.

3. The method of claim 1, wherein the personality types associated with the virtual characters are based on a Myers-Briggs personality model.

4. The method of claim 1, wherein the personality types associated with the virtual characters are based on an enneagram model.

5. The method of claim 1, wherein each of said personality types includes attributes of individual persons.

6. The method of claim 5, wherein said attributes include emotional states of an individual.

7. The method of claim 1, wherein said conversation provides a simulation of an interaction between members of a team on a particular team project.

8. The method of claim 1, wherein said conversation assists the user in anticipating reaction from various personality types in a plurality of situations.

9. A system for facilitating a virtual conversation between an individual and at least one of a plurality of virtual persons. said system comprising:

a storage means for storing a plurality of virtual persons each having an identity and an associated personality type;

an input means for a user to input data including selection of a virtual person;

a processing means for processing said user input; and

an output means for presenting a plurality of virtual persons and for presenting response of a simulated person to said user input, wherein said response is indicative of a response provided by an actual person having a personality type associated with the selected virtual person, and wherein further, said processing means is connected to said storage means, said input means and said output means.

10. The system of claim 9, wherein a personality type associated with a virtual person selected by the user is unknown to the user.

11. The system of claim 9, wherein the personality types are based on a Myers-Briggs personality model.

12. The system of claim 9, wherein the personality types are based on an enneagram model.

13. The system of claim 9, wherein each of said personality types includes attributes of individual persons.

14. The system of claim 13, wherein said attributes include emotional states of an individual.

15. The system of claim 9, wherein said conversation provides a simulation of an interaction between members of a team on a particular team project.

16. The system of claim 9, wherein said conversation assists the user in anticipating reaction from various personality types in a plurality of situations.

17. The system of claim 9, wherein said input means is at least one of a keyboard, a microphone and a stylus.

18. The system of claim 9, wherein said output means facilitates input.

19. The system of claim 9, wherein said output means is at least one of a monitor and a speaker.

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20. The system of claim 9, wherein the responses provide the user an ability to learn about a personality type.

FIG. 1

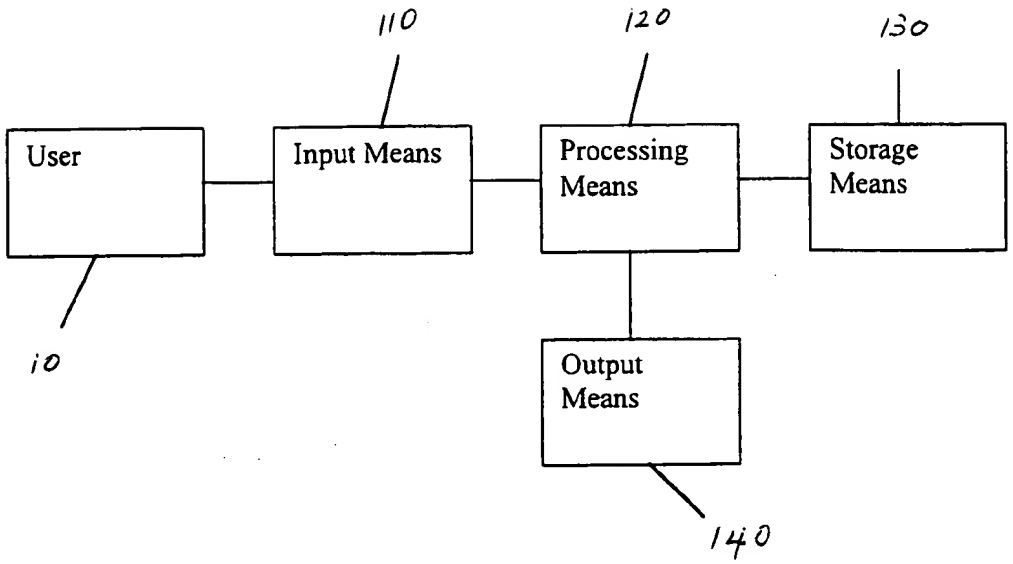
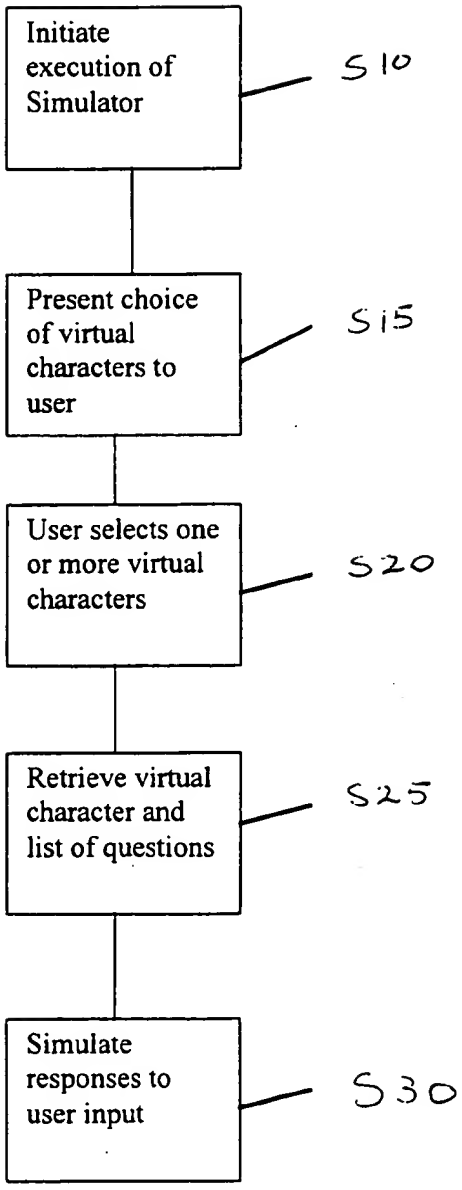

110
120
130
User
Input Means
Processing Means
Storage Means
10
Output Means
140

FIG. 2


Initiate execution of Simulator
S10
Present choice of virtual characters to user
S15
User selects one or more virtual characters
S20
Retrieve virtual character and list of questions
S25
Simulate responses to user input
S30